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**ABSTRACTS**



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## ABSTRACTS

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*HortFlora Research Spectrum*, 4(1) : (March 2015)

### 1. Evaluation of the Efficiency of Greenhouses in Guilan Province Using Data Envelopment Analysis (DEA)

**Rouzbeh Rahmanian\***

*Department of Mathematical Economics, University of National Academy of Sciences (ANAS), Azerbaijan,*

*\*E-mail: rouzbeh52@yahoo.com*

**ABSTRACT:** This research examines the financial performance of greenhouses in Guilan province in Iran. In order to do the research, questionnaires from 60 greenhouses were collected and features such as the general specifications of greenhouses, type of greenhouse covers, surface areas, infrastructure facilities, input raw material, energy and fuel costs, personal cost, production rate, sales prices of the produced products were considered. A financial performance measure developed from data envelopment analysis (DEA). According to the results, 7% of the greenhouses had an efficiency of 20%-40%, 22% between 40%-60%, 33% between 60%-80%, and 38% had more than 80%.

**Published in : *HortFlora Research Spectrum*, 4 (1) : 1-6 (March 2015)**

### 2. Heterosis and Inter-Relationship of Major Physiomorphic Fruit Yield Traits in Chilli (*Capsicum annuum* L.)

**Kashiram Patel, Dilip Birla, S.R. Ramgiry and S.A. Ali**

*Department of Vegetable Science, R.A.K. College of Agriculture (Rajmata Vijayaraje Sindhiya Krishi Vishwa Vidyalaya), Sehore-466001, Madhya Pradesh*

*\*E-mail: dilipbirla100@gmail.com*

**ABSTRACT :** The seeds of nine hybrids along with national check Pusa Jwala were evaluated in a Randomized Block Design in three replications for M.P. plains. The highest positive and significant correlation coefficient of fresh fruit yield plant<sup>-1</sup> was noted with dry fruit yield plant<sup>-1</sup>, number of fruits plant<sup>-1</sup>, 1000 seed weight, number of seed fruit<sup>-1</sup>, plant height at maturity, days to maturity and fruit length. Variation was highest for fresh fruit yield plant<sup>-1</sup> followed by number of fruits plant<sup>-1</sup>. High heritability coupled with high genetic advance for traits like number of secondary branches plant<sup>-1</sup> at 30 DAT followed by number of fruits plant<sup>-1</sup>. An overall observation of standard heterosis the hybrids HPH-2024, NCH-913 and Ujjala were recorded the best hybrids for yield and its component characters.

**Published in : *HortFlora Research Spectrum*, 4 (1) : 7-16 (March 2015)**

### 3. Effect of Post Harvest Treatments on Quality and Shelf life of Aonla Cultivars

**H. Tarula<sup>1</sup>, J.M.S. Rawat<sup>1</sup>, Krishan Kumar Singh<sup>1\*</sup>, Vidyawati Rawat<sup>2</sup> and Bhupendra Singh<sup>3</sup>**

*<sup>1</sup>Department of Horticulture, <sup>2</sup>Department of Rural Technology, <sup>3</sup>Department of Forestry, HNB Garhwal Central University, Chauras Campus, Srinagar (Garhwal) 246174, Uttarakhand, India*

*\*E-mail: forekrishna@gmail.com*

**ABSTRACT :** Freshly harvested mature fruits of aonla (*Emblia officinalis* Gaertn) cultivars namely NA-7, NA-10, Chakaiya and a wild aonla were dipped in GA<sub>3</sub> 100 mg L<sup>-1</sup>, 200 mg L<sup>-1</sup>, 300 mg L<sup>-1</sup>, MH 100 mg L<sup>-1</sup>, 200 mg L<sup>-1</sup>, 300 mg L<sup>-1</sup> and CaCl<sub>2</sub> 10 g L<sup>-1</sup>, 20 g L<sup>-1</sup>, 30 g L<sup>-1</sup> solutions. Fruits were surface dried, packed in nylon net bags and kept in room temperature (15.5±4°C) and RH 62.7%. Among the different post harvest treatments, it was found that GA<sub>3</sub> 200 mg L<sup>-1</sup> was best in reducing the physiological loss. No pathological loss was observed in all the treatments upto 14 days of storage. The maximum TSS content was recorded with GA<sub>3</sub> treatment. GA<sub>3</sub> 300 mg L<sup>-1</sup> treatment gave better retention of ascorbic acid and malic acid during the storage of aonla.

**Published in : *HortFlora Research Spectrum*, 4 (1) : 17-21 (March 2015)**

#### 4. Effect of N, P and K on Growth, Bulb Yield and Nutrient Content in Ratoon Spider Lily (*Hymenocallis littoralis* L.) cv. Local

**P. K. Kejkar and N. D. Polara\***

*Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh – 362 001*

*\*E-mail: ndpolara@jau.in*

**ABSTRACT** : A multifactor experiment on ratoon spider lily cv. Local was conducted at Instructional Farm of Horticulture Department, Junagadh Agricultural University during 2011-2012. All the growth parameters were significantly influenced due to different levels of nitrogen. Application of nitrogen @ 400Kg N ha<sup>-1</sup> with three equal split doses recorded significantly the highest plant height, number of leaves per plant, leaf area, leaf length, diameter and weight of single bulb, number of bulbs per plant, bulb yield ha<sup>-1</sup>, N content in leaves and bulbs. Phosphorus also played a significant role in improving growth parameters at higher level except, number of leaves per plant, bulb yield, P content in leaves and bulb. Potassium doses were significantly increased the P content in leaves and bulb. The optimum vegetative growth and bulb yield were obtained with combined application of 400Kg N ha<sup>-1</sup> and 200 Kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>.

**Published in : HortFlora Research Spectrum, 4 (1) : 22-27 (March 2015)**

#### 5. Exploration of Turmeric (*Curcuma longa* L.) Cultivation : A Review

**Ravi Pujari\*, A. A. Arif and Shivanand Rayar**

*Dept. of Plantation, Spices, Medicinal and Aromatic Crops, KRC College of Horticulture, Arabhavi. University of Horticultural Sciences, Bagalkot, Karnataka 591 218*

*\*E- mail: pujariravihort556@gmail.com*

**ABSTRACT** : *Curcuma longa* L is an important sacred and spice crop of Asia, used in several culinary purposes and also for treatment of several diseases. It is cultivated for its rhizomes for extraction of curcumin forming the principal source of drugs and colouring principle. In India, Andhra Pradesh, Karnataka, Tamil Nadu are the major state producing turmeric. There is a need to standardize the production technology which may help to improve the yield, quality so as to extend the farmers' hand of reliability so that they can get high net returns per unit area. The present review is focusing on production practices of *Curcuma longa* L.

**Published in : HortFlora Research Spectrum, 4 (1) : 28-33 (March 2015)**

#### 6. Studies on Genetic Variability and Trait Inter-Relationship in Bottle Gourd (*Lagenaria siceraria* (Mol.) Standl)

**Joydip Mandal\*, Mangala Tirumalesh and Vinod Kumar Dhangra**

*Department of Crop Improvement, Horticulture and Agriculture Botany (CIHAB), Institute of Agriculture, PSB, Visva-Bharati (A Central University), Sriniketan - 731236, West Bengal. India*

*\*E-mail: joydip\_hort@rediffmail.com*

**ABSTRACT** : A field investigation was carried out at Horticulture Farm of Institute of Agriculture, Sriniketan to evaluate the twenty seven genotypes of bottle gourd in randomized block design with three replications. Sowing was done in late *kharif* season of 2013 at a spacing of 50 cm between hills. Observations were recorded for 8 quantitative characters viz., node number of first female flower, sex ratio, days to first harvest, number of fruits per plant, fruit weight, fruit length, fruit girth and fruit yield per plant. The analysis of variance showed highly significant differences for all the characters studied indicating considerable variability among the genotypes. The highest GCV (34.84%) and PCV (35.14%) were observed for sex ratio. The differences between GCV and PCV were high for fruit number per plant indicating environmental influences. High heritability associates with high estimates of genetic advance in per cent of mean were noted for node number of first female flower, sex ratio, fruit length, fruit girth, number of fruits per plant and fruit yield per plant. It indicated the presence of additive gene effect and selection for these traits would be effective. Fruit yield/plant was positively and significantly correlated (at genotypic and phenotypic level) with fruit length and fruits number/plant. Negative associations of fruit yield/plant were noted with node number of first female flower, sex ratio and days to first harvest. Path analysis revealed that days to first harvest (2.783) and fruit girth (1.356) had very high positive direct effect on fruit yield/plant.

**Published in : HortFlora Research Spectrum, 4 (1) : 34-38 (March 2015)**

## 7. Effect of Planting Time and Indole Butyric Acid Levels on Rooting of Woody Cuttings of Phalsa (*Grewia asiatica* L.)

**K. K. Singh\* and Y. K. Tomar**

Department of Horticulture, Chauras Campus, HNB Garhwal University, Srinagar (Garhwal) 246174, Uttarakhand, India

\*E-mail: forekrishna@gmail.com

**ABSTRACT :** The study on effect of planting time and IBA levels on rooting of phalsa (*Grewia asiatica* L.) woody cuttings under mist house condition was undertaken in Horticulture Research Centre, Chauras Campus, HNBGU, Srinagar, Garhwal during 2013. The experiment was laid out in Factorial RBD with three replications. Cuttings were collected during winter season (mid January, February, March) and rainy season (mid June, July and August). The 20 cm long cuttings were prepared from 4 to 5 year old plants and treated with 1000, 1500, 2000 ppm IBA solutions by quick dip method. The cuttings treated with IBA 2000 ppm performed best in all aspects, as rooting percentage, length of shoot, length of root, thickening of root and leaf sprouting in shoot. Overall,  $M_4C_3$  (mid June planting with 2000 ppm IBA) treatment combination was found best for all parameters studied.

**Published in : HortFlora Research Spectrum, 4 (1) : 39-43 (March 2015)**

## 8. Standardization of Low Temperature Storage Technology with Novel Packaging Techniques in Rose Cut Flower cv. Passion

**R. J. Makhwana<sup>1</sup>, Alka Singh<sup>2\*</sup>, T. R. Ahlawat<sup>3</sup> and P. Neelima<sup>4</sup>**

<sup>1,2,4</sup>Department of Floriculture and Landscape Architecture

<sup>3</sup>Dept. of Fruit Science

ACHF, Navsari Agricultural SPEE College of Horticulture and Forestry, NAU, Navsari, Gujarat, India 396 450

\*E-mail: dralkasinghdhaka@gmail.com

**ABSTRACT :** Rose cut flowers of cv. Passion were subjected to storage techniques viz., seal packaging with polypropylene (PP 24  $\mu$ ), butter paper (52  $\mu$ ), holding in 200 mgL<sup>-1</sup> Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> vase solution, holding in vase (distilled water) and without any packaging and without holding in vase water at low temperature (2°C) for 10 days. The ten days cold stored flowers were compared with fresh cut flowers for vase life and quality. The polypropylene packaged low temperature stored cut roses showed optimistic results with best postharvest flower quality at the end of 10 days storage period as compared to other treatments. The PP packaged low temperature stored rose cut flowers showed maximum water uptake, retention of fresh weight, retained higher anthocyanin pigment content in the petals and maximum bud length and diameter when held in vase (distilled water) after 10 days of low temperature storage and were at par with fresh flowers (not stored). Cut flowers held in vase solution during low temperature storage failed to retain bud stage but showed advance bud opening at the end of the storage period. PP packaged low temperature stored cut roses showed higher membrane stability index (MSI) of petal tissue. The same treatment recorded maximum score for quality test. Thus PP packed cold stored rose flowers retained best flower quality as well as showed higher vase life as compared to the rose flowers stored with other treatments.

**Published in : HortFlora Research Spectrum, 4 (1) : 44-47 (March 2015)**

## 9. Residual Effect of Pre-Harvest Spray of MH and Storage Conditions of Bulbs for Succeeding Crop of Spider Lily (*Hymenocallis littoralis* L.) cv. Local

**Nilima Bhosale<sup>1</sup> and A.V. Barad<sup>2</sup>**

<sup>1</sup>Department of Horticulture, College of Agriculture, Baramati (Pune), Maharashtra

<sup>2</sup>College of Agriculture, Junagadh Agricultural University, Junagadh (Gujarat)

\*E-mail: avbarad55@gmail.com; avbarad@jau.in

**ABSTRACT :** The experiment to find out residual effect of pre-harvest spray of MH and storage conditions of bulbs for succeeding crop of spider lily (*Hymenocallis littoralis* L.) cv. Local was carried out at Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh during 2012-2013. The experiment consisted of six levels of pre-harvest MH spray with four levels of storage conditions and it was laid out in Factorial Randomized Block Design (FCRD) with three replications. Minimum days taken to sprouting, maximum number of leaves at 1<sup>st</sup> flowering stage and leaf area were found in control (no maleic hydrazide spray, and bulbs stored in plastic carets at an ambient temperature). But, minimum days to first flower emergence were found in control (no maleic hydrazide spray) and net bags at an ambient temperature.

Maximum plant height at 1<sup>st</sup> flowering stage was found in the MH 500 ppm with net bags at an ambient temperature. Maximum length of flower stalk was found in the MH 500 ppm with plastic carets at an ambient temperature. Maximum chlorophyll content in leaves, number of flower stalks/plant, number of flowers harvested per net plot and yield of flowers were found in MH 3000 ppm with plastic carets at an ambient temperature.

**Published in : HortFlora Research Spectrum, 4 (1) : 48-51 (March 2015)**

## **10. Analysis of Fruit Quality of Kinnow Mandarin Hybrid in Arid Irrigated Areas of Rajasthan**

**Prerak Bhatnagar\*, M.K Sharma and J.Singh**

*Department of Fruit Science, College of Horticulture and Forestry, Jhalawar-326 001(Rajasthan)*

*\*E-mail: prerakb\_22@yahoo.co.in*

**ABSTRACT :** The present study on physico-chemical characteristics of Kinnow fruit in Bikaner district at the farmer's field during 2010 revealed that peel percentage, juice recovery percentage and ascorbic acid content, total soluble solids were acceptable, whereas other quality attributes needed to be improved by regulating orchard management practices such as recommended doses of manures and fertilizers as well as foliar application of micronutrients etc. The bearing Kinnow trees of 10 years age are required to be fertilized by application of Single Super Phosphate (1.5 kg/tree), Muriate of Potash (350 g/tree) and Zinc sulphate (500 g/tree) in the month of January to the soil and by application of 50-60 kg well rotten FYM per tree.

**Published in : HortFlora Research Spectrum, 4 (1) : 52-55 (March 2015)**

## **11. Flower and Bulb Production of Tuberose (*Polianthes tuberosa* L.) as Influenced by Different Sources of Nutrients**

**Mukesh Kumar\***

*Department of Horticulture, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, U.P., India*

*\*E-mail: k.mukesh123@yahoo.com*

**ABSTRACT :** The present investigation on flower and bulb production of tuberose (*Polianthes tuberosa* L.) cv. Vaibhav as influenced by different sources of nutrients was carried out at Horticultural Research Centre (HRC) of SVPUAT, Meerut during the year 2013-14. The experiment consisted of ten treatments, viz. T<sub>1</sub>: control (without NPK), T<sub>2</sub> : 100% RDF (160:80:80), T<sub>3</sub>: 75% RDF + 25% Neem Cake, T<sub>4</sub>: 75% RDF + 25% Neem Cake+ 2.0 g/plant Azospirillum + 2.0g/plant PSB, T<sub>5</sub>: 75% RDF + 25% VC, T<sub>6</sub>: 75% RDF + 25% VC + 2.0 g/plant Azospirillum + 2g/plant PSB, T<sub>7</sub>: 50% RDF + 50% Neem Cake, T<sub>8</sub>: 50% RDF +50% Neem Cake + 2.0 g/plant Azospirillum + 2g/plant PSB, T<sub>9</sub>: 50% RDF + 50% VC T<sub>10</sub>: 50% RDF + 50% VC + 2.0 g/plant Azospirillum + 2g/plant PSB. Results revealed that the 50% reduced doses of inorganic fertilizers which was supplemented by organic and bio fertilizers using in treatment T<sub>10</sub> (50% RDF+ 50% VC + 2.0 g/plant Azospirillum + 2.0 g/plant PSB), produced maximum diameter of flower, number of florets per spike, diameter of spike and number of spikes per corm, while treatment T<sub>6</sub> resulted maximum length of spike, rachis length and number of corms per plant. The treatment receiving 50% RDF+ 50% VC + 2.0 g/plant Azospirillum + 2.0 g/plant PSB significantly resulted in maximum values for number of bulblets, diameter of bulb, weight of bulb and yield of bulbs and bulblets per plant.

**Published in : HortFlora Research Spectrum, 4 (1) : 56-59 (March 2015)**

## **12. Performance of Poplar Cuttings with Different Growth Regulators and Potting Media**

**Ahmadullah Haider\*, Neelam Khare and Ateeq Khan<sup>1</sup>**

*College of Forestry & Environment, Allahabad Agricultural Institute-Deemed University, Allahabad-U.P. 211007, India*

*<sup>1</sup>Department of Horticulture*

*\*E-mail:ahmadullahafg@yahoo.com*

**ABSTRACT :** The study was conducted on performance of poplar cuttings with different growth regulators and potting media in the Forest Nursery and Research Centre of SHIATS, Allahabad. The experiment was laid out in RBD with four replications. There were six treatments of growth regulators, viz. T<sub>1</sub>-Control (distilled water), T<sub>2</sub>- IBA(100 ppm),T<sub>3</sub>- IAA (100 ppm),T<sub>4</sub>- NAA (100 ppm), T<sub>5</sub>-GA<sub>3</sub> (100 ppm), T<sub>6</sub>-2,4-D (100 ppm), and seven treatments of potting media, viz. M<sub>1</sub>-Soil only, M<sub>2</sub>-Soil + Sand + FYM (1:1:1), M<sub>3</sub>- Soil + FYM + Neem cake (1:1:1), M<sub>4</sub>- Soil + FYM + VC (1:1:1), M<sub>5</sub>- Neem cake + sand + VC (1:1:1), M<sub>6</sub>- Neem Cake + Soil + VC (1:1:1) and M<sub>7</sub>- Neem cake + FYM + VC (1:1:1).Ten cuttings per replication were used for each treatment. Among

different growth regulators used, IAA @100 ppm showed maximum survival percentage (80.00%), shoot and root length ((35.30cm and 32.55cm, respectively), fresh shoot weight (20.00g), and fresh and dry weight of roots (13.00g and 6.47g, respectively), as well as total biomass (12.82g) compared to control and other treatments. Number of sprouts and no. of roots/cutting (2.25 and 27.00, respectively) and dry weight of shoot (6.70g) were found maximum with 100ppm IBA, while maximum root: shoot ratio of 1.15 was produced by 100 GA<sub>3</sub>. Among potting media combinations, most effective treatment was M<sub>2</sub> (Soil + Sand+ FYM, 1:1:1) which resulted in maximum number of sprouts/cutting (2.55), survival percentage (63.33%), shoot length (24.45 cm), dry weight of shoot (5.17g) and fresh weight of root (10.17g) over other treatments. Length of root (22.0cm), dry weight of roots (6.22g), root: shoot ratio (1.71) and total biomass (11.02g) were maximum in M<sub>7</sub> (Neem cake + FYM + VC, 1:1:1).

**Published in : HortFlora Research Spectrum, 4 (1) : 60-63 (March 2015)**

### **13. Post harvest Flowering Behaviour of Some Gladiolus Varieties Grown under Faizabad Climatic Condition**

**Pragnyashree Mishra\***

*Department of Horticulture, GBPUAT, Pantnagar*

*\*E-mail: pragnyashree.mishra@gmail.com*

**ABSTRACT :** The study was conducted to find out post harvest flowering behavior of some gladiolus varieties grown under Faizabad conditions. Results revealed that the per cent increase in spike length in vase was maximum in Red Sparkle at 4<sup>th</sup> and 8<sup>th</sup> day, and it was minimum in White Prosperity. Per cent opening of florets was maximum in Day Dreams at 4<sup>th</sup> and 8<sup>th</sup> day. Day Dreams also exhibited no floret dropping at 4<sup>th</sup> day. The longest vase life was found in Aldebaran, while Day Dreams exhibited shortest vase life.

**Published in : HortFlora Research Spectrum, 4 (1) : 64-66 (March 2015)**

### **14. Effect of Sowing Time and Spacing on the Performance of Cape Gooseberry (*Physalis peruviana* L.) in Central Uttar Pradesh**

**Deepa H. Dwivedi, Sanjeev Rao, Shreesh Kumar Gautam\* and Pawan Kumar**

*Department of Applied Plant Science (Horticulture), Babasaheb Bhimrao Ambedkar University, Vidya-Vihar, Raebareli Road Lucknow-226 025 (Uttar Pradesh) India.*

*\*E-mail: gautamshreesh@gmail.com*

**ABSTRACT :** Study on the effect of sowing time and spacing on the performance of Cape gooseberry (*Physalis peruviana* L.) in central Uttar Pradesh was conducted at Horticulture Research Farm, BBA University, Lucknow, India during 2011-12. The experiment was laid out in split plot design with three dates of sowing [D<sub>1</sub> (3 Nov., 2011), D<sub>2</sub> (8 Nov., 2011) and D<sub>3</sub> (13 Nov., 2011)] and four spacing [S<sub>1</sub> (35x90cm), S<sub>2</sub> (40 x 90cm), S<sub>3</sub> (45x90 cm) and S<sub>4</sub> (50x90 cm)] and was replicated thrice. Results revealed that maximum plant height (54.25 cm.), number of leaves/plant (60.50), number of internodes (11.50), diameter of stem (5.65 cm), number of branches/plant (7.88), number of flowers/plant (4.66) and number of fruits (5.55) were obtained at first date of sowing i.e., D<sub>1</sub> (3 Nov., 2011). The spacing of 40 x 90 gave significantly maximum plant height, number of internodes, diameter of stem, number of branches, number of flowers and number of fruits. The treatment D<sub>1</sub>S<sub>2</sub> (3 Nov. sowing with 45 x 90 cm spacing) was found to be the best for proper growth and development of the plant and fruiting performance of cape gooseberry.

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### **15. Influence of Spacing and Nitrogen on Flower Quality and Vase Life of Asiatic Lily cv. Gironde**

**R.S. Vedavathi<sup>1</sup>\*, B. Manjunatha<sup>2</sup>, N.P. Mamatha<sup>3</sup>, B. Hemla Naik<sup>4</sup> and H.L. Priyanka**

*K R C College of Horticulture, Arabhavi 591218, TQ. Gokak, Karnataka, India*

*\*E-mail: vedavathirnaik@gmail.com,*

**ABSTRACT :** The study on influence of spacing and nitrogen on flower quality and vase life of Asiatic lily cv. Gironde was carried out in UHS, Bagalkot during 2012-2013 and nitrogen levels viz., on flower quality and vase life of flowers. All twelve possible combinations of the spacing S<sub>1</sub> to S<sub>3</sub> (30x15 cm, 30x30 cm and 40x15 cm) and nitrogen levels N<sub>1</sub> to N<sub>4</sub> (0, 100, 150 and 200kg/ha) were laid in combination as per treatments in Factorial Randomized Block Design (FRBD) with three replications. The quality parameters and vase life of Asiatic lily were significantly influenced by spacing and nitrogen. Spacing of 30x15 cm and nitrogen level of 200 kg per ha were found excellent when compared to others. The interaction between spacing and nitrogen exhibited significant enhancement in bud diameter.

**Published in : HortFlora Research Spectrum, 4 (1) : 70-72 (March 2015)**

## 16. Effect of Chemical Floral Preservatives on Vase Life of Cut Flowers of Gerbera cv. President

**R. Amith<sup>1</sup>, Ravishankar M. Patil<sup>2\*</sup>, T. Chetan<sup>2</sup>, Abhishek Katagi<sup>3</sup> and V. Chikkasubbanna<sup>3</sup>**

<sup>1</sup>Horticulture Officer, Department of Horticulture, Karnataka.

<sup>2</sup>University of Horticultural Sciences, Bagalkot, Karnataka, India .

<sup>3</sup>KRC College of Horticulture, Arabhavi

\*E-mail: ravishankar.horti@gmail.com

**ABSTRACT :** Gerbera cv. President was subjected to twelve different treatment combinations against control to study the vase life. Treatment with 100ppm silver nitrate + 6% sucrose + 400 ppm 8-HQS + 100ppm silver thiosulphate showed significant beneficial effect in extending the vase life of the cultivar to 9.63 days, as against 7.57 days of vase life in control. The findings provide an alternative for extending the vase life of cut gerbera flowers. Treated flower stems also showed minimum contamination of micro organisms.

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## 17. Effect of Intercropping In Gladiolus with Coriander, Fenugreek and Soya

**Kunvar Manvendra Pratap Singh\* and Devi Singh**

Department of Horticulture, Allahabad School of Agriculture, Sam Higginbottom Institute of Agriculture, Technology and Sciences (SHIATS), Allahabad

\*E-mail: manvendrasingh987@gmail.com

**ABSTRACT :** The present experiment an "intercropping in gladiolus with coriander, fenugreek and soya under Allahabad condition was conducted during Rabi season at research farm of Department of Horticulture, SHIATS, Allahabad. The results revealed that growth parameters of coriander, fenugreek and soya, such as seed germination (%) , plant height, number of leaves and branches/plant were found to be higher under the treatment T<sub>2</sub> (coriander sole), T<sub>3</sub> (fenugreek sole) and T<sub>4</sub> (soya alone) followed by their individual intercropping with gladiolus, viz. T<sub>5</sub> (gladiolus + coriander), T<sub>6</sub> (gladiolus + fenugreek) and T<sub>7</sub> (gladiolus + soya). The performance of gladiolus in all respect (growth to yield) was found better under the combination of T<sub>6</sub> (gladiolus + fenugreek).

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## 18. Effect of Chemical Floral Preservatives on Vase Life of Cut Flowers of Gerbera cv. Suncity

**R. Amith<sup>1</sup>, Ravishankar M. Patil<sup>2\*</sup> and V. Chikkasubbanna<sup>2</sup>**

<sup>1</sup>Department of Horticulture, Karnataka State

<sup>2</sup>University of Horticultural Sciences, Bagalkot, Karnataka, India.

\*E-mail: revishankar.horti@gmail.com

**ABSTRACT :** Gerbera cv. Suncity was subjected to twelve different treatment combinations against control to evaluate vase life and quality. Treatment with 200ppm Aluminum sulphate + 4% sucrose + 200 ppm 8-HQS + 100ppm Silver thiosulphate showed significant beneficial effect in extending the vase life of the cut flower to 10 (9.5) days, as against 7 (7.47) days of vase life in control. Presence of microbes (*Bacillus spp.* and *Pseudomonas spp.*) was also recorded less on treated cut flower stems over control.

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## 19. Mulberry: The Fruit of Heaven's Choice

**V. Asha Krishna\*, P. Sujathamma, G. Savithri and T. Vijaya**

Department of Sericulture, S.P. Mahila Vishvavidyalayam (Women's University), Tirupati-517502, Andhra Pradesh, India

\*E-mail: ashakrishnanine@gmail.com

**ABSTRACT :** Mulberry, belongs to the genus *Morus* of family Moraceae, consists more than 20 species and several subspecies or varieties. Mulberry is cultivated in many countries for a long time with the sole purpose of feeding the monophagous silkworm *Bombyx mori* L. In addition to the major utilization of mulberry leaves as silkworm feed, it is being used for many other purposes, for which it is called as *Kalpavriksha*. The modern interest on the cultivation and use of mulberry for animal feed and medicinal uses has been initiated due to search for alternative uses of mulberry, once the sericulture activities reduced due to competition from foreign

countries in case of Japan and Italy. In addition to the major utilization of leaves as silkworm feed, they have many excellent and beneficial functions to do. This has opened a new vista to think about other uses of mulberry apart from silkworm feed. In this context multiple uses of mulberry fruits are being discussed in the paper.

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## **20. Development and Nutritional Analysis of Products Fortified with Moringa (*Moringa oleifera*)**

**Seema Sonkar\*, Preeti Tiwari and Nand Kumar**

*Department of Food Science and Nutrition, College of Home Science, C.S.A.U.A. & T., Kanpur.*

*\*E-mail : seemasonkar07@yahoo.com*

**ABSTRACT :** The study was carried out by recipe standardization and assessment of their physico-chemical properties. The sensory quality analysis of Biscuit was 7.28 than other developed products which were reported by panel members. It was found that percentage of moisture, fat, protein, carbohydrate and fibre were increased but the quantity of ash decreased (but increase as quality wise). The other developed products acceptability on basis of organoleptically and nutritional were decreased as well as in quantity and quality wise. This type research is remarkable step in the context of development of products for health benefits of people in one and other hand.

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## **21. Confirmation of Flavones and Rhamnopyranoside in *Strychnos potatorum* L. Flowers**

**Manika Barar\*, Shilpi Saxena and Arpita Kulshreshtha**

*Department of Chemistry, C.C.S. University, Meerut.*

*\*E-mail: dr.manikabr@gmail.com*

**ABSTRACT :** The glycoside on oxidation with sodium meta periodate consumed 3.04 moles of periodate with the liberation of 1.02 moles of formic acid for one mole of the glycoside. It consumed 3.12 moles of periodate and liberated 1.36 moles of formic acid per equivalent for each anhydrohexose sugar unit of the polymer after 60 h. Presence of (1→4)-O-α- type and (1→6)-β- type linkage obtained after methylation was also confirmed by the periodate oxidation results. A flavones glycoside 6,7,3',7' tetramethoxy flavones 5-O-β-D- glucopyranosyl -(1→4)-O-α-L-Rhamnopyranoside has been isolated from the methanolic extract soluble fraction of the rectified spirit soluble extract of the flowers of *Strychnos potatorum* L. and has been identified by its chemical and spectral analysis.

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**E-mail : hortfloraspectrum.india@gmail.com; submit.hortflorajournal2013@gmail.com**